

APR 05 2007

Application No. 10/060,791
Amendment dated April 5, 2007
Reply to Office Action of December 7, 2006

2

Docket No.: 60072A US

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A process for preparing a polyether having one or more halogen, aldehyde, ~~ketone or nitro~~ groups, comprising forming a mixture of a halogenated, ~~aldehyde containing, ketone containing or nitro containing~~ initiator compound having one or more oxyalkylatable groups, at least one alkylene oxide and ~~from about 1100 to 10,500 parts by weight, based on the weight of the product,~~ of a metal cyanide catalyst complex and subjecting the mixture to conditions sufficient to activate the catalyst complex and to alkoxylate the oxyalkylatable groups of the initiator wherein the halogenated compound having one or more oxyalkylatable groups is 2-chloroethanol, 2-bromoethanol, 2-chloro-1-propanol, 3-chloro-1-propanol, 3-bromo-1-propanol, 1,3-dichloro-2-propanol, 1-chloro-2-methyl-2-propanol, 3-chloro-2,2-dimethyl-1-propanol, 3-bromo-2,2-dimethyl-1-propanol, 4-chloro-1-butanol, 6-chloro-1-hexanol, 6-bromo-1-hexanol, 3-bromo-2-methyl-1-propanol, 7-bromo-1-heptanol, 8-chloro-1-octanol, 8-bromo-1-octanol, 2,2-dichloroethanol, 2,3-dibromopropanol, 2,2-bis(chloromethyl)-1-propanol, 2,2,2-tribromoethanol, 2,2,2-trichloroethanol, 2,2,2-trifluoroethanol, 2,2,3,3-tetrafluoro-1-propanol, 1-chloro-2-propanol, 1-bromo-2-propanol, 1,3-difluoro-2-propanol, 1,3-dibromo-2-propanol, 1,4-dibromo-2-butanol, 3-chloro-1,2-propanediol, 3-bromo-1,2-propanediol, 2-chloro-2-propene-1-ol, 2-chlorocyclohexanol, alpha-(chloromethyl)2,4-dichlorobenzyl alcohol, or trans-2,3-dibromo-2-butene-1,4-diol.

2. (Original) The process of claim 1 wherein the initiator compound is chlorinated or brominated.

3. (Original) The process of claim 2 wherein the alkylene oxide is ethylene oxide, propylene oxide or 1,2-butylene oxide.

4. (Original) The process of claim 3 wherein at least three moles of alkylene oxide are added per equivalent of initiator, and the polydispersity of the product is less than about 1.25.

5. (Original) The process of claim 2 wherein the initiator compound is 2-chloroethanol, 2-bromoethanol, 2-chloro-1-propanol, 3-chloro-1-propanol, 3-bromo-1-propanol, 1,3-dichloro-

BEST AVAILABLE COPY

Application No. 10/060,791
Amendment dated April 5, 2007
Reply to Office Action of December 7, 2006

3

Docket No.: 60072A US

2-propanol, or 1-chloro-2-methyl-2-propanol

6. (Currently Amended) The process of claim 2 wherein the metal cyanide catalyst complex is used in an amount of from about 2000 to 10,000 parts by weight, ~~based on the weight of the product,~~ of a metal cyanide catalyst complex per million parts of the product.

7. (Withdrawn) The process of claim 1 wherein the initiator compound contains one or more nitro groups.

8. (Withdrawn) The process of claim 7 wherein the alkylene oxide is ethylene oxide, propylene oxide or 1,2-butylene oxide.

9. (Withdrawn) The process of claim 8 wherein at least three moles of alkylene oxide are added per equivalent of initiator, and the polydispersity of the product is less than about 1.25.

10. (Currently Amended) A poly(alkylene oxide) polymer containing the residue of an initiator compound containing at least one halogen, aldehyde ketone or nitro group, the polymer having an average alkoxy degree of polymerization of at least three moles of alkylene oxide per equivalent of initiator compound wherein the halogenated compound having one or more oxyalkylatable groups is 2-chloroethanol, 2-bromoethanol, 2-chloro-1-propanol, 3-chloro-1-propanol, 3-bromo-1-propanol, 1,3-dichloro-2-propanol, 1-chloro-2-methyl-2-propanol, 3-chloro-2,2-dimethyl-1-propanol, 3-bromo-2,2-dimethyl-1-propanol, 4-chloro-1-butanol, 6-chloro-1-hexanol, 6-bromo-1-hexanol, 3-bromo-2-methyl-1-propanol, 7-bromo-1-heptanol, 8-chloro-1-octanol, 8-bromo-1-octanol, 2,2-dichloroethanol, 2,3-dibromopropanol, 2,2-bis(chloromethyl)-1-propanol, 2,2,2-tribromoethanol, 2,2,2-trichloroethanol, 2,2,2-trifluoroethanol, 2,2,3,3-tetrafluoro-1-propanol, 1-chloro-2-propanol, 1-bromo-2-propanol, 1,3-difluoro-2-propanol, 1,3-dibromo-2-propanol, 1,4-dibromo-2-butanol, 3-chloro-1,2-propanediol, 3-bromo-1,2-propanediol, 2-chloro-2-propene-1-ol, 2-chlorocyclohexanol, alpha-(chloromethyl)2,4-dichlorobenzyl alcohol, and trans-2,3-dibromo-2-butene-1,4-diol.

Application No. 10/060,791
Amendment dated April 5, 2007
Reply to Office Action of December 7, 2006

4

Docket No.: 60072A US

11. (Original) The polymer of claim 10 which contains, prior to any clean-up or purification, no more than 5 weight percent of by-products other than unreacted starting materials and a high molecular weight fraction.
12. (Original) The process of claim 10 wherein the initiator compound is chlorinated or brominated.
13. (Original) The process of claim 11 wherein the alkylene oxide is ethylene oxide, propylene oxide or 1,2-butylene oxide.
14. (Original) The process of claim 13 wherein at least three moles of alkylene oxide are added per equivalent of initiator, and the polydispersity of the product is less than about 1.25.
15. (Withdrawn) The process of claim 14 wherein the initiator compound is 2-chloroethanol, 2-bromoethanol, 2-chloro-1-propanol, 3-chloro-1-propanol, 3-bromo-1-propanol, 1,3-dichloro-2-propanol, 1-chloro-2-methyl-2-propanol.
16. (Withdrawn) The process of claim 11 wherein the initiator compound contains one or more nitro groups.
17. (Withdrawn) The process of claim 12 wherein the alkylene oxide is ethylene oxide, propylene oxide or 1,2-butylene oxide.
18. (Withdrawn) The process of claim 17 wherein at least three moles of alkylene oxide are added per equivalent of initiator, and the polydispersity of the product is less than about 1.25.
19. (Currently Amended) A process comprising forming a mixture of a halogenated initiator compound having one or more oxyalkylatable groups, at least one alkylene oxide and ~~from about 2000 to about 10,000 ppm of a metal cyanide catalyst complex and~~ subjecting the mixture to conditions sufficient to activate the catalyst complex and to

Application No. 10/060,791
Amendment dated April 5, 2007
Reply to Office Action of December 7, 2006

5

Docket No.: 60072A US

alkoxylate the oxyalkylatable groups of the initiator to form a polyether containing at least one halogen group and at least one hydroxyl group, and then contacting said polyether with ammonia, a primary amine or a secondary amine under conditions sufficient to replace said halogen group with an amine group wherein the halogenated compound having one or more oxyalkylatable groups is 2-chloroethanol, 2-bromoethanol, 2-chloro-1-propanol, 3-chloro-1-propanol, 3-bromo-1-propanol, 1,3-dichloro-2-propanol, 1-chloro-2-methyl-2-propanol, 3-chloro-2,2-dimethyl-1-propanol, 3-bromo-2,2-dimethyl-1-propanol, 4-chloro-1-butanol, 6-chloro-1-hexanol, 6-bromo-1-hexanol, 3-bromo-2-methyl-1-propanol, 7-bromo-1-heptanol, 8-chloro-1-octanol, 8-bromo-1-octanol, 2,2-dichloroethanol, 2,3-dibromopropanol, 2,2-bis(chloromethyl)-1-propanol, 2,2,2-tribromoethanol, 2,2,2-trichloroethanol, 2,2,2-trifluoroethanol, 2,2,3,3-tetrafluoro-1-propanol, 1-chloro-2-propanol, 1-bromo-2-propanol, 1,3-difluoro-2-propanol, 1,3-dibromo-2-propanol, 1,4-dibromo-2-butanol, 3-chloro-1,2-propanediol, 3-bromo-1,2-propanediol, 2-chloro-2-propene-1-ol, 2-chlorocyclohexanol, alpha-(chloromethyl)2,4-dichlorobenzyl alcohol, and trans-2,3-dibromo-2-butene-1,4-diol.

20. (Withdrawn) A process comprising forming a mixture of a nitro-containing initiator compound having one or more oxyalkylatable groups, at least one alkylene oxide and from about 2000 to about 10,000 ppm of a metal cyanide catalyst complex and subjecting the mixture to conditions sufficient to activate the catalyst complex and to alkoxylate the oxyalkylatable groups of the initiator to form a polyether containing at least one nitro group and at least one hydroxyl group, and then subjecting said polyether to conditions sufficient to reduce said nitro group to an amine group to form amino groups.

21. (New) The process of Claim 19 wherein the metal cyanide catalyst complex is present in an amount from 1100 to about 10,500 parts by weight million parts of the polyether.

22. (New) The process of Claim 1 wherein the metal cyanide catalyst complex is present in an amount from 1100 to about 10,500 parts by weight million parts of the polyether.

23. (New) The process of claim 10 wherein the halogenated compound having one or more oxyalkylatable groups is 2-chloroethanol, 2-bromoethanol, 2-chloro-1-propanol, 3-chloro-1-propanol, 3-bromo-1-propanol, 1,3-dichloro-2-propanol, or 1-chloro-2-methyl-2-propanol.

Application No. 10/060,791
Amendment dated April 5, 2007
Reply to Office Action of December 7, 2006

6

Docket No.: 60072A US

24. (New) The process of claim 19 wherein the halogenated compound having one or more oxyalkylatable groups is 2-chloroethanol, 2-bromoethanol, 2-chloro-1-propanol, 3-chloro-1-propanol, 3-bromo-1-propanol, 1,3-dichloro-2-propanol, or 1-chloro-2-methyl-2-propanol.